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LED Display Product Data Sheet LTP-2144A2-NB

Spec No.: DS30-2000-427

Effective Date: 01/09/2001

Revision: -

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

FEATURES

- * 2 inch (47.1 mm) MATRIX HEIGHT.
- * LOW POWER REQUIREMENT.
- * SINGLE PLANE, WIDE VIEWING ANGLE
- * SOLID STATE RELIABILITY.
- * 4x4 ARRAY WITH X-Y SELECT.
- * COMPATIBLE WITH USASCLL AND EBCDIC CODES.
- * STACKABLE HORIZONTALLY.
- * CATEGORIZED FOR LUMINOUS INTENSITY.

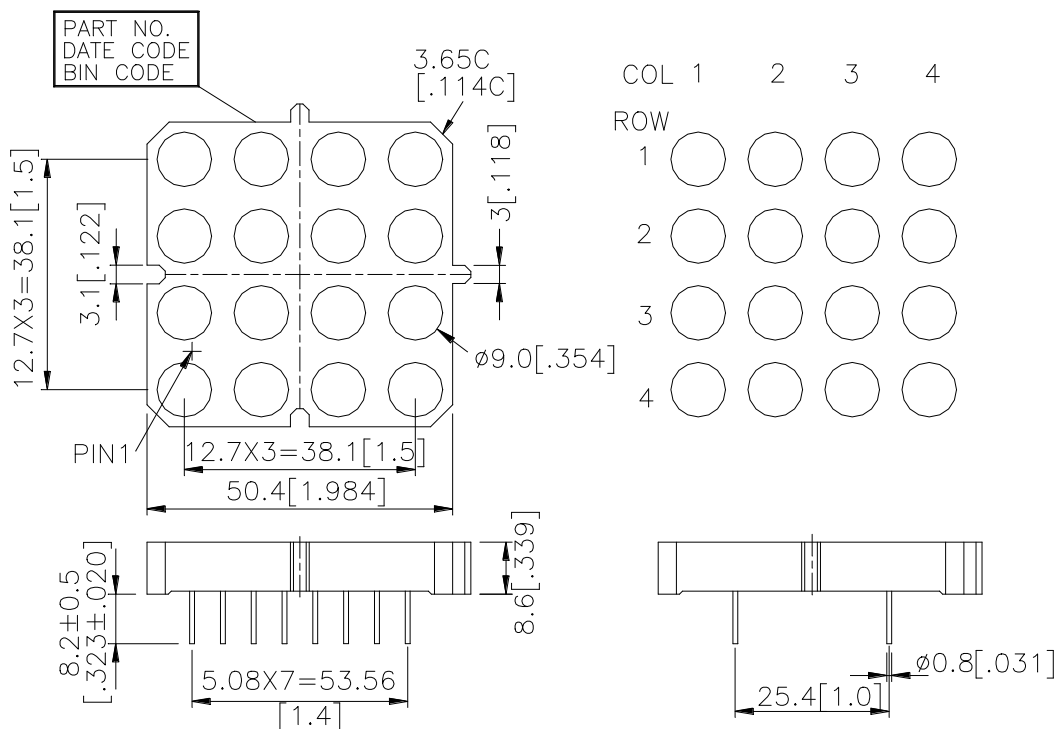
DESCRIPTION

The LTP-2144A2-NB is a 2 inch (47.1 mm) matrix height 4x4 dot matrix display. This device utilizes red orange LED chips, which are made from GaAsP on a transparent GaP substrate, the device utilizes green LED chips, which are made from GaP on a transparent GaP substrate, and has a black face and white dots.

DEVICE

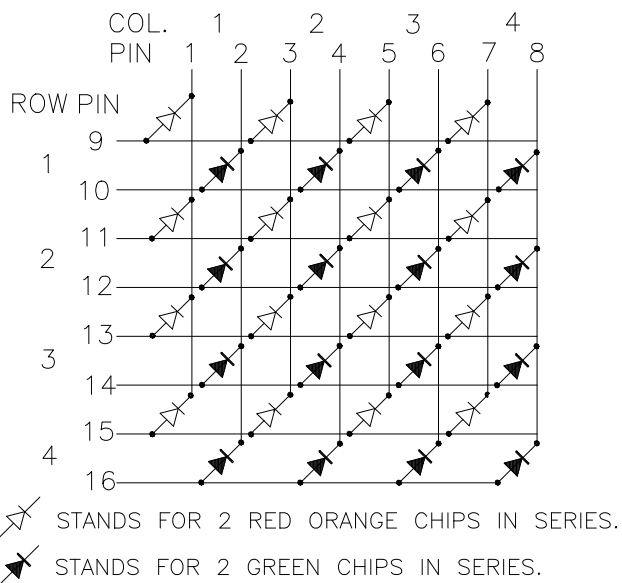
| PART NO. | DESCRIPTION |
|--------------------|--------------------|
| Red Orange & Green | Cathode Column |
| LTP-2144A2-NB | Anode Row |

PACKAGE DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are ± 0.25 mm (0.01") unless otherwise noted.

INTERNAL CIRCUIT DIAGRAM



PIN CONNECTION

| No. | CONNECTION |
|------------|-----------------------------|
| 1 | CATHODE COL. 1 (RED ORANGE) |
| 2 | CATHODE COL. 1 (GREEN) |
| 3 | CATHODE COL. 2 (RED ORANGE) |
| 4 | CATHODE COL. 2 (GREEN) |
| 5 | CATHODE COL. 3 (RED ORANGE) |
| 6 | CATHODE COL. 3 (GREEN) |
| 7 | CATHODE COL. 4 (RED ORANGE) |
| 8 | CATHODE COL. 4 (GREEN) |
| 9 | ANODE ROW 1 (RED ORANGE) |
| 10 | ANODE ROW 1 (GREEN) |
| 11 | ANODE ROW 2 (RED ORANGE) |
| 12 | ANODE ROW 2 (GREEN) |
| 13 | ANODE ROW 3 (RED ORANGE) |
| 14 | ANODE ROW 3 (GREEN) |
| 15 | ANODE ROW 4 (RED ORANGE) |
| 16 | ANODE ROW 4 (GREEN) |

ABSOLUTE MAXIMUM RATING AT T_A=25°C

| PARAMETER | RED ORANGE | GREEN | UNIT |
|---|----------------|-------|-------|
| Average Power Dissipation Per Dot | 64 | | mW |
| Peak Forward Current Per Dot | 90 | | mA |
| Average Forward Current Per Dot | 11 | | mA |
| Derating Linear From 25°C Per Dot | 0.15 | | mA/°C |
| Reverse Voltage Per Dot | 10 | | V |
| Operating Temperature Range | -35°C to +85°C | | |
| Storage Temperature Range | -35°C to +85°C | | |
| Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260°C | | | |

ELECTRICAL / OPTICAL CHARACTERISTICS AT T_A=25°C

GREEN

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITION |
|-----------------------------------|-------------------|------|------|------|------|----------------------------------|
| Average Luminous Intensity | I _v | 2600 | 9600 | | μcd | I _p =80mA 1/16DUTY |
| Peak Emission Wavelength | λ _p | | 565 | | nm | I _F =20mA |
| Spectral Line Half-Width | Δλ | | 30 | | nm | I _F =20mA |
| Dominant Wavelength | λ _d | | 569 | | nm | I _F =20mA |
| Forward Voltage any Dot | V _F | | 4.2 | 5.2 | V | I _F =20mA |
| | | | 6 | 7.4 | V | I _F =80mA |
| Reverse Current any Dot | I _R | | | 100 | μA | V _R =10V |
| Luminous Intensity Matching Ratio | I _v -m | | | 2:1 | | I _p =80mA 1/16DUTY |

RED ORANGE

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITION |
|-----------------------------------|-------------------|------|------|------|------|----------------------------------|
| Average Luminous Intensity | I _v | 2600 | 9600 | | μcd | I _p =80mA 1/16DUTY |
| Peak Emission Wavelength | λ _p | | 630 | | nm | I _F =20mA |
| Spectral Line Half-Width | Δλ | | 40 | | nm | I _F =20mA |
| Dominant Wavelength | λ _d | | 621 | | nm | I _F =20mA |
| Forward Voltage any Dot | V _F | | 4 | 5.2 | V | I _F =20mA |
| | | | 5.2 | 6.8 | V | I _F =80mA |
| Reverse Current any Dot | I _R | | | 100 | μA | V _R =10V |
| Luminous Intensity Matching Ratio | I _v -m | | | 2:1 | | I _p =80mA 1/16DUTY |

Note: Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Internationale De L'Eclairage) eye-response curve.

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

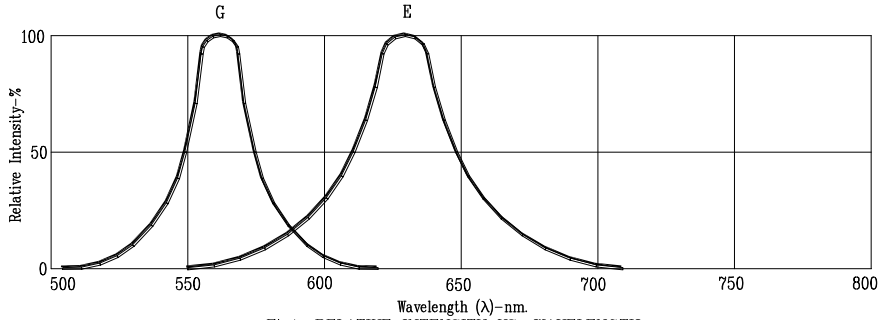


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

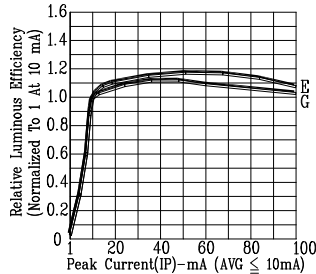


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

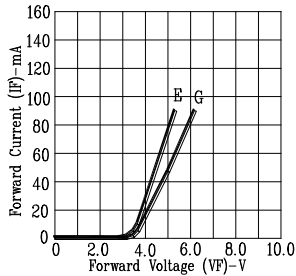


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

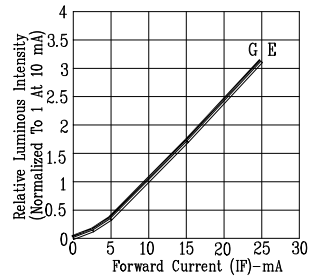


Fig4. RELATIVE LUMINOUS INTENSITY (NORMALIZED TO 1 AT 10 mA) VS. FORWARD CURRENT

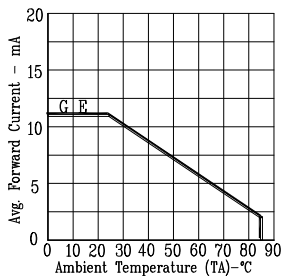


Fig5. MAX. AVERAGE FORWARD CURRENT VS. AMBIENT TEMPERATURE.

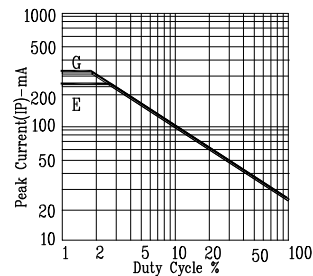


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: G=GREEN & E=RED ORANGE